FORM PTO-1390 (REV 11-2000) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. § 371

ATTORNEY'S DOCKET NUMBER	U.S. APPLICATION NO. (If known, see 37 CFR 1.5)
449122010000	09/914625 Not yet assigned

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/DE00/00602	01 March 2000	03 March 1999

TITLE OF INVENTION

CELLULAR COMMUNICATION NETWORK WITH SEARCH FUNCTION

APPLICANT(S) FOR DO/EO/US

Karl-Ulrich STEIN

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☒ is attached hereto (required only if not communicated by the International Bureau).
   b. ☐ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application under PCT Article 19 (35 U.S.C. 371(c)(2)).
   a. ☐ is attached hereto.
   b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
   a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   b. ☐ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A FIRST preliminary amendment.
14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information: 1) IPER; 2) Int'l Search Report; 3) Application Data Sheet; 4) Return receipt postcard.

CERTIFICATE OF HAND DELIVERY

I hereby certify that this correspondence is being hand filed with the United States Patent and Trademark Office in Washington, D.C. on August 31, 2001.

R. Lynn Boyden

R. Lynn Boyden

U.S. APPLICATION NO. (if known, see 37 CFR 1.5) Not yet assigned 09/914625	INTERNATIONAL APPLICATION NO. PCT/DE00/00602	ATTORNEY'S DOCKET NUMBER: 449122010000

21. ☒ The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO $1,000.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO $860.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO $710.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provision of PCT Article 33(1)-(4) $690.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) $100.00

				CALCULATIONS PTO USE ONLY	
			ENTER APPROPRIATE BASIC FEE AMOUNT =	$860.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				$0	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	27 - 20 =	7	x $18.00	$126.00	
Independent claims	3 - 3 =	0	x $80.00	$0	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ $270.00	$270.00	
			TOTAL OF ABOVE CALCULATIONS =	$1,256	
☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by ½.				$0	
			SUBTOTAL =	$1,256	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☒ 30 months from the earliest claimed priority date (37 CFR 1.492(f)).			+	$130.00	
			TOTAL NATIONAL FEE =	$1,386	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00 per property**			+	$40.00	
			TOTAL FEES ENCLOSED =	$1,426	
				Amount to be refunded:	**$**
				charged:	**$**

a. ☒ Please charge my **Deposit Account No. 03-1952** in the amount of $1,426.00 to cover the above fees. A duplicate copy of this sheet is enclosed.

b. ☒ The Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment to **Deposit Account No. 03-1952**.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Kevin R. Spivak
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SIGNATURE

Kevin R. Spivak
Registration No. 43,148

Description

Cellular communications network with a search function

The invention relates to a cellular communications network with a search function.

Mobile radio systems that are intended for a relatively large number of subscribers are typically cellular, i.e. the total area to be served by a network is divided into smaller radio cells, so-called communications cells. The smaller the individual cells are, the more mobile telephone subscribers can be supported with a limited frequency spectrum per area. The present radio-frequency digital communications networks such as GSM 900 and GSM 1800 with very high subscriber numbers have small cell sizes with radi of a kilometer or less. The use of small cell sizes is also envisaged for a future UMTS mobile radio standard. It is thus possible, by assigning a mobile telephone to a communications cell, to find the location the mobile telephone with a precision of a few hundred meters.

The invention is based on the object of proposing a positioning system for mobile telephones for use in emergencies such as accidents or for combating crime, in which the positioning process should be possible without assistance from the mobile telephone user.

The object is achieved with the cellular communications system defined in claim 1, in which the mobile telephone to be sought can be switched to a passive mode, in which it is not recognizable as a normal network subscriber and receives only a specific search signal for this mobile telephone, and in answer to this emits a response signal, which is received by one or more base stations. As a result of the spatial distribution of the base stations that receive the response signal, the area in which the mobile telephone is positioned can be determined.

The communications system according to the invention has the advantage that it allows a covert search for persons with a favorable cost/benefit ratio. The search function can easily be integrated with software in existing or future mobile radio systems such as GSM networks and/or UMTS networks and be offered to a wide public as an additional service.

The invention likewise proposes a method for determining the position of a mobile telephone in a cellular communications system, and a mobile telephone for executing the search function. Advantageous developments of the invention are disclosed in the sub-claims.

The mobile telephone can be switched by a user, preferably by means of an identification code (PIN), between the passive mode that allows only the search function, and a normal conversation mode, and/or switched off completely. It is not possible for a user or caller to distinguish whether the mobile telephone is switched off or is in the passive mode that permits the search function. A covert search is thereby enabled. The passive mode requires interaction with the network only for the search operation, so that the power consumption is lower than in the normal switched-on state with roaming, and the search function can therefore be maintained over a longer period.

It is optionally possible to switch the mobile telephone to normal operation on reception of the search signal, so that the sought person can communicate by radio with the searcher.

The search signal and the response signal can be encrypted, so that unauthorized persons can identify these signals only with difficulty, if at all.

The response signal can contain encrypted information about the locality of the mobile telephone, which information is received via sensors such as a microphone affixed to the mobile telephone.

In order to further reduce the energy consumption in which search mode, a periodic ready-to-receive state can be provided, so that the search signal is receivable for example for 10 seconds in each minute.

The invention is described in the following text with the help of a preferred embodiment, with reference to the accompanying single **Figure 1**, which shows schematically the structure of a communications system according to the invention.

The cellular communications system has a large number of communications cells 1, each of which has a base station 2 with transceiver facility. With suitable time and/or frequency division multiplex techniques, calls can be made simultaneously in a single cell by several mobile telephones 5. The cell size is between a few kilometers and a few hundred meters or less in radius, depending on the user density.

The mobile radio network has a home location register 3, in which the mobile telephones of a network operator are registered, the call acceptance and assignment are controlled and the billing is carried out.

A mobile telephone according to the invention has, as well as the known operating states "off", in which the mobile telephone can receive no signals at all, and "on", when there is regular interaction with the communications network, and so-called roaming, i.e. the

present position of the mobile telephone is notified to the home location register, so that continuous availability for calls is ensured, a further operating state, referred to as the passive mode. In this, the mobile telephone is not recognizable as a normal network subscriber, and no roaming takes place. The mobile telephone recognizes only a search signal specific to itself, and sends a short encrypted response signal in reply. Neither the user who is holding the mobile telephone, nor a caller can find out whether the mobile telephone is in the passive mode or switched off. The mobile telephone accessible is only bringing the special search mode. The passive mode can be activated and deactivated again by the user, preferably after entering an identification code (PIN).

Since, in the passive mode, there is no continuous interaction between the mobile telephone and the communications network, the mobile telephone's power consumption is lower in passive mode than in the switched-on or standby operating mode. In order to reduce the power consumption further and thereby extend the operating time in the passive mode, an interval operating mode can be provided, so that the mobile telephone is ready to receive the search signal for ten seconds in each minute, for example.

As soon as a mobile telephone is switched to the passive mode, this is stored in a memory 4 in the home location register 3 together with its communications cell. No further information is subsequently available as to the cell in which the mobile telephone is located.

The search mode can be carried out only by a person with authorization for this, who proves his identity with an identification code, for example. These persons can be close relatives of the owner of the mobile telephone to be found, public authorities such as

police or public prosecutors, or else the employer of the mobile telephone's holder. As soon as the search process is initiated, the control device 6 linked to the home register 3 selects a number of base stations 2 for the first search. For this, the information on the last whereabouts of the mobile telephone before activation of the passive mode, stored in the memory 4, is preferably consulted. The selected base stations 2 then send a specific search signal for the sought mobile telephone 5. If the sought mobile telephone is within range of these base stations, it sends the encrypted response signal, which is received by one or more of the base stations. From the position of the base stations that receive the response signal, the position of the sought mobile telephone can be determined relatively precisely. At the same time, the intensity and arrival time of the response signal can also be used as parameters for position finding. If the base stations receive no response signal, the search operation is extended to a wider area, and repeated as necessary.

The response signal output by a mobile telephone is encrypted in duration and frequency in such a way that it can be identified only by a system that knows the response key. Other receivers see it only as noise. Misuse of the search function can thus be avoided.

The mobile telephone can also be equipped with sensors such as a microphone or a temperature sensor. In the response signal, encrypted information about the environment of the mobile telephone in the passive mode can then be transmitted, such as a noise, light/dark or the temperature, humidity or similar. These functions could be useful, for example, in finding kidnap victims.

A further variant of the invention is the provision of a mobile telephone for the passive mode only. It is

then possible to dispense with a keyboard or display as needed for the other mobile telephone functions. The passive mobile telephone can thus be made very small and light, and it does not need to have the usual form for mobile telephones. It can be included disguised in other objects such as a printer, a clock or a pocket calculator.

The invention enables a search function for a mobile telephone, which can easily be integrated in existing and future mobile radio communications systems. A mobile telephone in the passive mode cannot be distinguished from one that is switched off. Because of the low energy consumption in the passive mode, this can be maintained over a long period.

Claims

1. A cellular communications system having a number of communications cells (1) with at least one base station (2) each for cordless communication with a large number of mobile telephones (5), and a home location register (3) for registration of the mobile telephones (5),
characterized in that
- at least one of the mobile telephones (5) can be switched to a passive mode, in which it is not recognizable as a normal network subscriber and detects only a specific search signal for this mobile telephone, and then emits a response signal,
- the home location register (3) has a memory (4) for storing mobile telephones (5) in the passive mode,
- the base stations (2) are designed to send mobile-telephone-specific search signals in a search operation for mobile telephones in the passive mode,
- the home location register (3) has a control device (6), which is designed to initiate at least one search operation at the instigation of an authorized user, and, as a result of response signals received by the base stations (2) from the sought mobile telephone (5), to determine its position and/or status.

2. The cellular communications system as claimed in claim 1,
characterized in that
the passive mode of a mobile telephone (5) can be switched on and off by a user by means of a user identification code.

3. The cellular communications system as claimed in claim 1 or 2,
characterized in that
the mobile telephone (5) is switched on by reception of the search signal.

4. The cellular communications system as claimed in one of claims 1 to 3,
characterized in that
the search signal is encrypted.

5. The cellular communications system as claimed in one of claims 1 to 4,
characterized in that
the search signal is pulsed.

6. The cellular communications system as claimed in claim 5,
characterized in that
a mobile telephone (5) in the passive mode allows periodic reception of the search signal in synchronism with its pulse repetition frequency.

7. The cellular communications system as claimed in one of claims 1 to 6,
characterized in that
the response signal is encrypted.

8. The cellular communications system as claimed in one of claims 1 to 7,
characterized in that
at least one mobile telephone (5) has a memory facility for storing various statuses detected by sensors or capable of being set by a user, the response signal emitted by the mobile telephone (5) transmitting information about the operating statuses stored by the memory.

9. The cellular communications system as claimed in one of claims 1 to 8,
characterized in that
a mobile telephone (5) in the passive mode cannot roam.

10. A method for determining the position of a mobile telephone (5) in a cellular communications network,
the mobile telephone (5) being switchable to a passive mode, in which it is not recognizable as a normal network subscriber and detects only a specific search signal for this mobile telephone (5), and then sends a response signal, and the mobile telephone (5) in the passive mode being stored in the associated home location register (3) of the communications network,
the search operation comprises the following steps:

- emission of the specific search signal by selected base stations (2),
- reception of the response signal from the sought mobile telephone (5) by one or more base stations (2),
- as a result of the recorded response signals, determination of a position area where the sought mobile telephone (5) is located.

11. The method as claimed in claim 10,
characterized in that
the base stations (2) for emitting the search signal are chosen selectively depending on the information stored in the home location register (3).

12. The method as claimed in claim 9 or 10,
characterized in that
the search operation is performed repeatedly.

13. The method as claimed in one of claims 10 to 12,
characterized in that
the search signals and/or response signals are encrypted.

14. The method as claimed in claim 13,
characterized in that

the encryption codes are changed after a search operation.

15. The method as claimed in one of claims 10 to 14,
characterized in that
the mobile telephone (5) in the passive mode is periodically ready to receive the search signal.

16. The method as claimed in claim 15,
characterized in that
the search signal is transmitted in pulsed form.

17. The method as claimed in one of claims 10 to 16,
characterized in that
mobile telephones (5) in the passive mode cannot roam.

18. The method as claimed in one of claims 10 to 17,
characterized in that
a user authorized to execute a search operation is identifiable by means of an identification code.

19. The method as claimed in one of claims 10 to 18,
characterized in that
the signal strength and/or time of reception of a response signal received from the mobile telephone (5) in one or more cells (1) is used for determining the position of the sought mobile telephone (5).

20. A mobile telephone for a cellular communications network, which telephone can be switched to a passive mode, in which the mobile telephone (5) is not recognizable as a normal network subscriber and detects only a specific search signal for this mobile telephone (5), and then sends a response signal in reply.

21. The mobile telephone as claimed in claim 20, characterized in that
the passive mode can be switched on and off by means of a user identification code.

22. The mobile telephone as claimed in claim 19 or 20, characterized in that
the emitted response signal is encrypted.

23. The mobile telephone as claimed in one of claims 20 to 22,
characterized in that
the mobile telephone (5) has one or more sensors for detecting noises, brightness, temperature or similar.

24. The mobile telephone as claimed in one of claims 20 to 23,
characterized in that
the mobile telephone (5) is designed for use only in passive mode.

Declaration and Power of Attorney For Patent Application
Erklärung Für Patentanmeldungen Mit Vollmacht
German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

As a below named inventor, I hereby declare that:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

My residence, post office address and citizenship are as stated below next to my name,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprunglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Zellulares Kommunikationsnetz mit Suchfunktion

Cellular communication network with search function

deren Beschreibung

the specification of which

(zutreffendes ankreuzen)
☐ hier beigefügt ist.
☒ am 01.03.2000 als
PCT internationale Anmeldung
PCT Anmeldungsnummer PCT/DE00/00602
eingereicht wurde und am _____
abgeändert wurde (falls tatsächlich abgeändert).

(check one)
☐ is attached hereto.
☒ was filed on 01.03.2000 as
PCT international application
PCT Application No. PCT/DE00/00602
and was amended on _____
(if applicable)

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

German Language Declaration

Prior foreign appplications
Priorität beansprucht

			Priority Claimed	
19909314.8	DE	03.03.1999	☒	☐
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	Yes Ja	No Nein
			☐	☐
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	Yes Ja	No Nein
			☐	☐
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	Yes Ja	No Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozeßordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35. United States Code. §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occured between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/DE00/00602 (Application Serial No.) (Anmeldeseriennummer)	01.03.2000 (Filing Date D, M, Y) (Anmeldedatum T, M, J)	anhängig (Status) (patentiert, anhängig, aufgegeben)	pending (Status) (patented, pending, abandoned)
_____ (Application Serial No.) (Anmeldeseriennummer)	(Filing Date D,M,Y) (Anmeldedatum T, M; J)	_____ (Status) (patentiert, anhängig, aufgeben)	(Status) (patented, pending, abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: *(Name und Registrationsnummer anführen)*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

Customer No. 25227

And I hereby appoint

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Morrison and Foerster LLP
2000 Pennsylvania Ave., NW 20006-1888 Washington, DC
Telephone: (001) 202 887 1500 and Facsimile (001) 202 887 0763
or
Customer No. 25227

Voller Name des einzigen oder ursprünglichen Erfinders: Dr. KARL-ULRICH STEIN	Full name of sole or first inventor: Dr. KARL-ULRICH STEIN
Unterschrift des Erfinders Datum Karl-Ulrich Stein 11. Juli 2001	Inventor's signature Date
Wohnsitz UNTERHACHING, DEUTSCHLAND DE	Residence UNTERHACHING, GERMANY
Staatsangehörigkeit DE	Citizenship DE
Postanschrift ISARTALSTR.14	Post Office Addess ISARTALSTR.14
82008 UNTERHACHING	82008 UNTERHACHING
Voller Name des zweiten Miterfinders (falls zutreffend):	Full name of second joint inventor, if any:
Unterschrift des Erfinders Datum	Second Inventor's signature Date
Wohnsitz ,	Residence ,
Staatsangehörigkeit	Citizenship
Postanschrift	Post Office Address

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).

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Application deficiencies found during scanning:

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